Geophysical Research Abstracts,
Vol. 10, EGU2008-A-09926, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-09926
EGU General Assembly 2008

Interannual variability of winter precipitation in the European Alps: relations with the North Atlantic Oscillation.

E. Bartolini (1), P.D'Odorico (2), P. Claps (3)

(1) Politecnico di Torino, Dipartimento di Idraulica, Trasporti ed Infrastrutture civili (elisa.bartolini@polito.it), (2) University of Virginia, Department of Environmental Sciences (paolo@virginia.edu), (3) Politecnico di Torino, Dipartimento di Idraulica, Trasporti ed Infrastrutture Civili (claps@polito.it)

The region of the European Alps presents a strategic importance for water resources but is also vulnerable to the effects of climate change. From this perspective it is important to understand the evolution of seasonal changes in the precipitation fields, especially during winter, when most of the strategic water storage for the warm season accumulates. In this paper, the interannual variability of winter alpine precipitation has been studied using the monthly precipitation time series collected in the database CRU TS 1.2. Grid data have been compared with meteorological station data, in order to verify their ability in reproducing correctly the spatial variability of the rainfall in such a large region. The availability of water resources has been assessed with monthly precipitation and with the Standardized Precipitation Index at various temporal scales to identify possible temporal trends. In fact, even if it is traditionally considered as a drought index, the SPI is also useful to describe wet periods. In order to understand the climatic evolution of the area and to help the identification of regions more prone to drought or critical events both precipitation and SPI have been also related to the large scale atmospheric circulation patterns, i.e. the North Atlantic Oscillation, the Arctic Oscillation and the East Atlantic West Russia. A modified SPI has been developed to this end assuming the same temporal scale of the North Atlantic Oscillation Index. Application demonstrated the existence of significant relations for the identification of the Alps chain as a border between areas positively and negatively correlated with

the NAO.